

Premier Issue  
Feb. 1982

\*\*\*\*\*  
THE NATIONAL IMAGINATION  
COMPUTER CLUB  
\*\*\*\*\*

515 W. Shady Lane Barrington, Illinois 60010

Welcome to the National Imagination Computer Club. Through this newsletter we hope to broaden your views of the API Imagination machine and its future capabilities.

We invite you to write us and tell us of your experiences with your machine, so that we can share them with other club members.

We also invite you to share programs whether they be BIG or little, just plain fun or serious. I'm sure the other members will find them both helpful and enjoyable.

Also write to us about problems so that through our network of club members we can get them answered for you.

And don't forget to tell us about your new ideas as to what you would like to see in the newsletter, and what you like and don't like about your machine.

Send all thoughts, ideas, programs, and answers to:  
THE NATIONAL IMAGINATION COMPUTER CLUB  
515 W. Shady Lane  
Barrington, IL. 60010

1

#### Bad Bugs

If you get an orange screen or garbage at the top when loading your tapes, it may be caused by a long leader on the cassette tape. Simply wait two or three seconds after you press the play button when loading the tape before hitting the return key.

If you have an annoying buzz on the computer console speaker after you have loaded the tape, simply insert the command POKE 24578,54 in the first line of the program. When you run the program the noise should stop for good. (or at least till you load another tape)

Arrays: The manuals all say that the maximum number of dimensioned variables in an array is 99. In reality the maximum number of dimensioned variable for single or dual arrays is 999. Note\*: The character length for a string variable is still 99 though.  
DIM A(200), B(150,50), C(1,800) are all good legitimate statements

Also when working with string variables, if you dimension a single variable then you have the number dimensioned + 1. Example: Dim A\$(5) will give you one variable with 6 characters. When dimensioning a set of strings the second number gives the number of characters exactly, (you don't add one to it).  
Example: DIM A\$(4,6) will give you 5 strings with exactly 6 characters each.

If you have trouble with the cartridges when you put them in the Basic interpreter socket on the computer console, pull the "U" console connector out and insert the cartridge in the MF1000

2

#### PROGRAMMING NOTES:

Many questions have been asked regarding the high resolution graphics. Therefore, I will attempt to answer some of the questions here. First of all there are two modes of high resolution graphics. The first is 128 x 192 dots, and the second is 256 x 192 dots. Both modes divide the screen into 384 boxes, composed of 32 x 12 matrix.

Each box will contain a shape which is made by you. Therefore the first thing you have to do is make the shapes. Then simply by putting the shapes in the right boxes on the screen you will make a picture or object.

Lets work with mode 1 first (124 x 192). Each shape is composed of 16 rows of 4 dots.

Each dot can be one of 4 colors. To define the color of the dots in each row you have to send the computer a number corresponding to the code for the combination of colors in each row. You would do this through a poke statement. For instance, if you wanted the dots in row 1 to be: BLUE YELLOW RED RED you would need to poke location 512 with the number 159, like this:  
POKE 512,159 Now, how did we get 159 and how did we know where to put it?

The place in memory where the shapes are stored is composed of 32 rows of 16 boxes. Each box has a number between 512 through 1023, and each row defines a shape. Therefore row 0 is shape 0, row 1 is shape 1, and row 6 is shape 6. (the computer numbers the rows from 0 through 31 instead of 1 to 32) Each box in the row corresponds to 4 dots. For example:

Since Box 1 of row 0 is 512 and there are 16 boxes in a row, the first box in row 6 would be:

$$512 + (6 \times 16) = 608$$

The box corresponding to the row of dots in the example would be 613. Therefore we would poke location 613. The formula for that location is:

$$512 + (\text{row number} \times 16) + (\text{row of dots in shape} - 1)$$

$$613 = 512 + (6 \times 16) + (6 - 1)$$

4

Now we know what location to poke into, but how do we know what number to put in that location?

First of all, each dot can have 1 of 4 colors. Each color has a number which are:

GROUP 0	No.	GROUP 1
green	0	white
yellow	1	aqua
blue	2	purple
red	3	orange

There are two color sets, which means you can choose from the 4 colors in group 1 or the four colors in group 0. But you can not have colors from both sets at the same time on the screen. After you decide what your shape will look like, and the colors of the dots in each row, you simply plug the numbers (corresponding to the colors used) into this formula:

$$(A \times 64) + (B \times 16) + (C \times 4) + D$$

A= the number of the color corresponding to the first dot  
 B= the number of the color corresponding to the second dot  
 C= the number of the color corresponding to the third dot  
 D= the number of the color corresponding to the fourth dot

Therefore if we wanted the colors of the four dots in our example to be:  
 GREEN BLUE RED YELLOW  
 the formula would read:

$$(0 \times 64) + (2 \times 16) + (3 \times 4) + 1 = 45$$

This means that to define the row of dots in our example we would use the command POKE 613,45.

After all the dots in our shape have been defined, we need to put the shape on our screen. We do this with another poke statement. To find the numbers used we must first know the following:

The screen is divided into 12 rows of 32 boxes. These boxes are numbered 0 through 383.

To find the location of the 12th box in row 5 would mean using this formula:  

$$[\text{row number} \times 32] + [\text{box number in the row} - 1] = \text{Box location}$$
 Therefore in our example:  

$$[5 \times 32] + [12 - 1] = 171$$
 so the location of the box in question is 171. next we have to decide which color group to use, either 0 or 1. The shape is then plotted to the screen with the following formula:  
 POKE box location, shape number + (64 x color group)

Therefore to plot the shape that we defined earlier (row 6 in the shape table) to location 171 on the screen we would use the command POKE 171,6

To change the colors to the other group (group 1) we would just have to add 64 to the row number and the command would be POKE 171,70.

Example 2:  
 We are going to plot blue and red stripes on the screen.

```
10 POKE 8193,60
20 POKE 8194,158 : REM this gets you into the 128 x 192 mode
30 REM set the colors of the dots in shape 6
40 FOR I = 0 TO 8
50 POKE 608+I,255 : REM first 8 rows contain all red dots
60 NEXT
70 FOR J = 9 TO 16
80 POKE 608+J,170 : REM last 8 rows contain all blue dots
90 NEXT
100 REM put shape 6 in all 384 boxes on the screen
110 FOR K = 0 TO 383
120 POKE K,6
130 NEXT
140 AS=KEY$(0):IF AS=""THEN 140
```

The last command contains instructions that will keep the display on the screen until you press a key on the keyboard.

To get back to the normal mode type POKE 8193,52 return then type POKE 8194,30

return.

Try replacing the 6 in line 120 with 70 for different colors.

7

#### PROGRAMS

CRAPS PROGRAM SUBMITTED by Ken Whitmare

```
1 SHAPE= 15:CALL 17046
2 FOR I=0 TO 7
3 FOR P=1 TO 100:NEXT
4 COLOR=1
5 HLIN I,31-I,I
6 HLIN 1,31-I,15-I
7 VLIN 1,15-I,I
8 VLIN I,15-I,31-I
9 NEXT I
11 POKE 24578,54
15 CALL 17046
16 PRINT"CRAPS"
20 INPUT"TRY AGAIN (1=YES)",Z:IF Z=1 THEN 22:STOP
22 PRINT(6*RND(1)+1):B=INT(6*RND(1)+1)
25 PRINT"POINT IS",A+B
29 FOR P=1 TO 500:NEXT
30 IF A+B=7 THEN PRINT"WINNER":GOTO 20
40 IF A+B=11 THEN PRINT"WINNER":GOTO 20
50 C=INT(6*RND(1)+1):D=INT(6*RND(1)+1)
55 PRINT C+D,
60 IF A+B=C+D THEN PRINT"WINNER":GOTO 20
70 IF C+D=7 THEN PRINT"YOU CRAPPED OUT":GOTO 20
75 FOR P=1 TO 500:NEXT
80 GOTO 50
```

8

More Programs submitted by Ken Whitmare

#### Graphics Programs

```
1 CALL 17046
2 POKE 24578,54
10 SHAPE=15
12 FOR A=0 TO 7
15 COLOR=A
18 FOR P=1 TO 100:NEXT P
20 HLIN 0,31,8
25 FOR B=0 TO 7
30 COLOR=B
35 FOR P=1 TO 100:NEXT P
40 VLIN 0,15,15
50 NEXT A
55 NEXT B
60 GOTO 10
```

```
1 CALL 17046
2 POKE 24578,54
10 SHAPE=15
15 FOR C=0 TO 7
```

```
20 COLOR=C
25 FOR A=0 TO 15
30 HLIN 0,31,A
31 NEXT A
32 FOR B=0 TO 31: COLOR=7
35 VLIN 0,15,B
41 NEXT B
43 FOR P= 1 TO 100:NEXT P
45 NEXT C
60 GOTO 10
```

NATIONAL "IMAGINATION" COMPUTER CLUB

(FACTORY SPONSORED)

1982 MEMBERSHIP APPLICATION

Expires 12-31-82

PURPOSE: KEEP OWNERS AND PROSPECTIVE OWNERS INFORMED ON A NATIONAL BASIS ABOUT

THE FANTASTIC CAPABILITIES OF THE NEW 23K APP IM-1 CONFPVEB  
INFORMATION FURNISHED: LATEST PRODUCT DEVELOPMENTS TO ENHANCE AND EXPAND THE  
CAPABILITIES OF THE NEW 22 APP IM-1 COMPUTER.  
KEEPING UP WITH LATEST DEVELOPMENTS AND PROBLEMS FROM ALL  
SOURCES,

OWNER EXPERIENCES: BUGS - IMPROVEMENTS - EXPANSION IDEAS - PROGRAM  
EXCHANGE ETC.

APPLICANT

NAME \_\_\_\_\_ STREET \_\_\_\_\_  
ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

PHONE NO. \_\_\_\_\_

INCLUDE ANNUAL FEE \$15.00. MAKE CHECK PAYABLE TO JOE BADGER, NICC  
(NATIONAL "IMAGINATION"  
COMPUTER CLUB)

AS A CLUB MEMBER YOU WILL BE ENTITLED TO A SPECIAL CLUB PRICE ON MANY  
ITEMS. THIS  
CLUB PRICE WILL NOT BE NO LESS THAN 15% ON ALL PROGRAMS. YOUR SAVINGS  
SHOULD EASILY  
PAY YOUR 1982 CLUB MEMBERSHIP FEE.

A MONTHLY COMPUTER CLUB LETTER IS ISSUED, STARTING FEBRUARY 1982. IF NEW  
INFORMATION  
IS IMPORTANT ENOUGH WE WILL ISSUE MORE FREQUENT LETTERS.

MAIL TO: CLUB PRESIDENT

JOE BADGER  
515 W. SHADY LANE  
BARRINGTON, IL 60010  
PHONE: 312/382-5244

10

"Snoopy"  
GRAPHICS & MUSIC  
PROGRAM EXAMPLE

```

1  CALL 17046
2  PRINT "GRAPHICS BY THE APP MACHINE"
3  FOR P=1 TO 300: NEXT P
10  SHAPE =15: COLOR =2
20  FOR Y=0 TO 31
40  VLIN 0,15,Y
50  NEXT Y
60  REM ...AIRPLANE...
70  COLOR =1
80  HLIN 25,28,6: HLIN 25,28,7: HLIN 7,14,8: HLIN 20,28,8: HLIN 7,25,9:
PLOT 7,10: HLIN 15,30,10
90  REM ...WING...
100  COLOR =3
110  HLIN 8,14,]0
120  REM ...WHEEL...
130  COLOR =6
140  HLIN 10,11,12
150  REM ...ENGINE...
160  COLOR =6
170  HLIN 5,6,8: HLIN 4,6,9: HLIN 5,6,10
180  REM ...HEAD...
190  COLOR 14
200  HLIN 15,20,3: HLIN 15,20,4: HLIN 11,20,5: HLIN 11,20,6: HLIN
16,18,7
210  COLOR =0
220  PLOT 16,4: HLIN 18,18,4: HLIN 18,19,5: PLOT 10,6
230  COLOR =3
240  HLIN 16,18,8
250  REM ...PROP...
255  FOR P=1 TO 200
256  IF P=200 GOTO 310
260  COLOR =7
270  PLOT 4,8: PLOT 4,10: PLOT 4,7: PLOT 4,11
280  COLOR =2
290  PLOT 4,7: PLOT 4,11: PLOT 4,8: PLOT 4,10
295  NEXT P
300  GOTO 250
310  PRINT : PRINT : PRINT "MUSIC BY THE APP MACHINE"
315  FOR P=1 TO 200: NEXT P
320  CALL 17046
500  FOR N=1 TO 32: PRINT : NEXT N
520  POKE 40960,2: POKE 40961,0
530  PRINT : PRINT "I'VE BEEN WORK-ING ON THE"
540  PRINT "RAIL-ROAD."
550  MUSIC "100/51/51230001000"
5110 PRINT "ALL, THE LIVE-LONG DAY."
570  MUSIC "4004102030000000"
580  PRINT "I'VE BEEN WORK-ING ON THE"
590  PRINT "RAIL-ROAD."

```

```

600 MUSIC "100/51/512300010"
610 PRINT "JUST TO PASS THE TIME A-WAY."
620 MUSIC "33302020302000000"
630 PRINT "CAN'T YOU HEAR THE WHIST-LE": PRINT "BLOW-INC"
640 MUSIC "2002+12321000/5000"
650 PRINT "RISE UP SO EARLY IN THE MORN."
660 MUSIC "404411223000000"
670 PRINT "CAN'T YOU HEAR THE CAP-MI#R: PRINT "SHOUT-INC?"
680 MUSIC "/6000/71/71/6/500010000"
690 PRINT "DI-NA YOUR HORN!"
700 MUSIC "3040302010000000"
710 GOTO 1

```

11

REVISED EXAMPLES IN APP BASIC  
LANGUAGE REFERENCE MANUAL

```

PAGE 10 PRINT A,B
PRINT A:B
PRINT A:TAB(10);B
PRINT USING A$,B

```

```

PAGE 15 EXAMPLE
10 SHAPE=15
20 FOR I=0 TO 7
30 COLOR=I
40 HLIN I,31-I,I
50 HLIN I,31-I,15-I
60 VLIN I,15-I,I
70 VLIN I,15-I,31-I
80 NEXT I
90 GOTO 50
PAGE 11 EXAMPLE
50 DIM B$(5), D$(5)
100 DATA 37, BILL,B,SAM
200 READ A,B$
300 RESTORE
400 READ C,D$
500 PRINT A,C,B$,D$
600 GOTO 50
PAGE 16

```

```

EXAMPLE
10 L=7
20 P=22
30 A=L*32+P+512
40 POKE 40960,A/256
50 POKE 40961,A-INT(A/256)*256

```

```

PAGE 12 10 DIM A$(19) B$(1)
20 A$="ABCDEFGHIJ"
30 PRINT A$
40 PRINT A$(4)

```



```
50 B$=A$(3): Print B$
PAGE 20
```

#### AUDIO RECORDING

PRESS AUDIO RECORD AND PLAY/SAVE KEYS

```
PAGE 13 EXAMPLE
5 DIM A$(10), B$(10)
10 PRINT USING A$,1$
20 A$="5552332"
30 B$="77665"
40 MUSIC A$,B$
50 GOTO 5
```

12

```
23K APF IM-1
PROGRAMMING EXAMPLES
```

HOW TO USE MULTI PRINT & TAB STATEMENT.

```
10 PRINT TAB (1); "SALES"; TAB (10); "PRINT"; TAB (18); "MATS"
```

SALES PRINT MATS

HOW TO USE READ, DATA AND IF, THEN STATEMENTS.

```
10 READ A
20 IF A=999 THEN PRINT "WE ARE ALL DONE": STOP
30 PRINT "THIS TIME A=",A
40 GOTO 10
50 DATA 10,20,30,40,50,999
```

```
THIS TIME A= 10
THIS TIME A= 20
THIS TIME A= 30
THIS TIME A= 40
THIS TIME A= 50
WE ARE ALL DONE
```

```
100 REM "VOTE COUNTER"
101 REM "REWRITTEN FOR THE APF"
110 DIM C(3,2)
210 FOR A=1 TO 3: FOR L=1 TO 2
220 C(K,L)=0
230 NEXT L: NEXT K
310 READ V,A: IF V=-1 THEN 410
320 C(V,A)=C(V,A)+1: GOTO 310
410 PRINT "CAND.", "DEM.", "REPUB.", "OTHER"
420 PRINT
430 PRINT "KENNETH", C(1,1), C(1,2), C(1,3)
440 PRINT "JOHN", C(2,1), C(2,2), C(2,3)
450 PRINT "HELEN", C(3,1), C(3,2), C(3,3)
510 DATA 3,1,1,1,1,2,2,3,1,3,3,1,2,1
520 DATA 2,2,3,2,3,3,1,1,2,3,1,2,2,1
530 DATA 3,3,3,2,3,2,2,2,1,1,1,1,3,2
540 DATA 3,2,2,1,3,1,1,2,1,3,2,2,2,1
550 DATA 3,1,1,3,1,3,2,3,3,3,1,2,1,3
560 DATA 2,3,2,1,3,1,1,2,3,3,1,3,2,1
```

970 DATA 3,1,3,3,-1,-1

CAND. DEM. REPUB. OTHER  
KENNETH 5 5 5  
JOHN 6 3 5  
HELEN 6 5 5

13

HOW TO USE MULTI READ, DATA STATEMENTS.

```
400 FOR A=1 TO 5
410 FOR B=1 TO 5
500 DIM A$(4,10)
510 READ A$(4,10)
520 PRINT A$(4,10)
530 NEXT A
531 PRINT
532 NEXT B
800 DATA HELLO,HOW,ARE,YOU,BOYS
810 DATA JAMES,FEEL'S,FINE,TODAY,GIRLS
820 DATA THE,GIRLS,ARE,ALL,SICK
830 DATA ALL,LITTLE,BOYS,LIKE,CANDY
840 DATA HOW,MANY,BOYS,ARE,THERE
```

```
HELLO JAMES THE ALL HOW
HOW FEEL'S GIRLS LITTLE MANY
ARE FINE ARE BOYS BOYS
YOU TODAY ALL LIKE ARE
BOYS GIRLS SICK CANDY THERE
```

HOW TO USE "INPUT" STATEMENT.

```
40 INPUT B: PRINT "INPUT B=";B
45 FOR A=1 TO 5
50 PRINT A*B
50 NEXT A
```

```
INPUT B=25
25
50
75
100
125
```



Epson®

### THE EPSON® 8000 \$1,495

For those who need a reliable printer for business or home use, the Epson 8000 is the perfect choice. It's a high-speed, high-quality printer that can handle all your printing needs.

With a maximum resolution of 24 pin, the Epson 8000 can produce sharp, clear text and graphics. It's also a very quiet printer, so you can use it without disturbing others. And, it's easy to use and maintain.

### TELEPHONE MODELS \$1,495

The Epson 8000 is a high-speed, high-quality printer that can handle all your printing needs. It's also a very quiet printer, so you can use it without disturbing others. And, it's easy to use and maintain.

### THE EPSON® 8000 \$1,495

For those who need a reliable printer for business or home use, the Epson 8000 is the perfect choice. It's a high-speed, high-quality printer that can handle all your printing needs. With a maximum resolution of 24 pin, the Epson 8000 can produce sharp, clear text and graphics. It's also a very quiet printer, so you can use it without disturbing others. And, it's easy to use and maintain.

Epson®



### THE EPSON® 8000 \$1,495

For those who need a reliable printer for business or home use, the Epson 8000 is the perfect choice. It's a high-speed, high-quality printer that can handle all your printing needs. With a maximum resolution of 24 pin, the Epson 8000 can produce sharp, clear text and graphics. It's also a very quiet printer, so you can use it without disturbing others. And, it's easy to use and maintain.

Epson®



### The EPSON® MX

The Epson MX is a high-speed, high-quality printer that can handle all your printing needs. It's also a very quiet printer, so you can use it without disturbing others. And, it's easy to use and maintain.

The Epson MX is a high-speed, high-quality printer that can handle all your printing needs. It's also a very quiet printer, so you can use it without disturbing others. And, it's easy to use and maintain.

## PROTECTO

### ENTERPRISE

For those who need a reliable printer for business or home use, the Epson 8000 is the perfect choice. It's a high-speed, high-quality printer that can handle all your printing needs. With a maximum resolution of 24 pin, the Epson 8000 can produce sharp, clear text and graphics. It's also a very quiet printer, so you can use it without disturbing others. And, it's easy to use and maintain.



# PERFORMANCE FEATURE COMPARISON

## PERSONAL COMPUTER 3

ITEM	MODEL A	MODEL B	MODEL C	MODEL D
PRICE	\$1999.00	\$2499.00	\$1499.00	\$1799.00
RAM - MEMORY	16	32	16	32
STORAGE - HDD	1TB SSD (SATA)	2TB SSD (SATA)	1TB SSD (SATA)	1TB SSD (SATA)
PROCESSOR	Intel i5	Intel i7	Intel i5	Intel i5
Display - Screen	15.6"	15.6"	15.6"	15.6"
Keyboard - Type	Backlit	Backlit	Backlit	Backlit
Weight - Laptop (kg)	2.2	2.5	2.0	2.0
Connectivity - Ports	USB-C	USB-C	USB-C	USB-C
Warranty	3 Years	3 Years	3 Years	3 Years
OS - Operating System	Windows 11	Windows 11	Windows 11	Windows 11
Ports	2x USB-A	2x USB-A	2x USB-A	2x USB-A
Weight - PC (kg)	1.5	1.8	1.5	1.5